Ramsey Broadband Coalition Community Fiber Network BTOP Grant Proposal Executive Summary

The Ramsey Broadband Coalition Community Fiber Network (RBC CFN) is a unique, public-private partnership designed to meet essential community needs across the 156 square miles of Ramsey County, Minnesota. This initiative represents a strong collaboration across three levels of government (state, county and city); K-12 & higher education; County & City library systems and other community stakeholders (including public safety agencies). Our approach matches institutional and community needs with qualified private partners to fully implement a dual conduit, next generation, community fiber network throughout Ramsey County, MN. It is the result of five years of community dialogue by government, business, non-profit and education stakeholders.

Minnesota Fiber Exchange in partnership with Unitek Global Services has been chosen to design/build and operate the CFN. Unitek Global Services provides fiber engineering and build services to major telecom companies and municipalities. Minnesota Fiber Exchange is a consortium of industry professionals with extensive experience in the deployment and maintenance of fiber networks.

Our goal is to construct a 145 mile dual conduit community fiber Gigabit Ethernet (GigE) network. The first, I-Net conduit links all levels of local government – state, county (5) and city (17); K-12 Districts (6); community colleges (2); higher education (4); and libraries (20); medical and healthcare providers (8); and others totaling of 201 anchor institutions. The second, MFE Net conduit, secured through a convertible IRU, is an open access, carrier neutral network which allows broadband and telecom providers to serve up to 17,608 businesses, 1,555 non-profits and 211,572 potential households. By implementing parallel networks, the cost and disruption to rights-of-way are significantly reduced, and expenses to maintain the infrastructure are minimized.

Ramsey County's partners and 201 anchor institutions include, but are not limited to; City of St. Paul, City of New Brighton, , State of Minnesota's Office of Enterprise Technology, National Lambda Rail, University of Minnesota, Saint Paul Community College, Century College, Metro State University, Ramsey County and Saint Paul Public Library Systems, City of Saint Paul Police Department, and Ramsey County Sheriff.

Through the RBC Community Benefits Agreement, government agencies, schools and not for profit organizations will be able to improve benefits and services to their communities including access to healthcare and government services, improved educational opportunities, workforce skills development, improved access to the arts and community based organizations). RBC will increase the number of Community Technology Centers (CTC); will facilitate digital literacy education initiatives; and promote to compliment storefront and housing renovations in challenged neighborhoods with "desktop renovations" To assist small businesses in creating an on-line presence and gain the digital skills necessary to realize the benefits of broadband adoption.

The total cost of the network is \$33,158,178, of which, MFE is providing a 30% funding match in the amount of \$9,947,454. MFE has also committed to working to leverage this network to create a privately financed Tier 3+ data center within Ramsey County. The combination of the open access fiber and the development of a Tier3+ data center will provide significant economic development opportunities and employment in our community.

The Ramsey Broadband Coalition Community Fiber Network (RBC CFN) will create 231 new and indirect jobs (estimated as 201 new jobs, 30 indirect jobs), and an additional 130 community induced job years.

Local governments in Ramsey County have placed a high priority on redesign of government in order to streamline services, improve efficiency and, most important, provide better results. RBC CFN interconnections with National Lambda Rail, other counties and municipalities, public safety agencies, and school districts are an essential step toward streamlining and improving government efficiencies. The MFE network can be leveraged by businesses (for private use) and by private providers, carriers and ISPs (see Letters of Intent section) that will make their own last mile investments. The strategic planning and design of the MFE network enables community anchors access to an important array of new services via broadband adoption, throughout Ramsey County. Fifty percent of third party service providers within the proposed service area have expressed their commitment, or provided a letter of interest.

RBC CFN joins with National Lambda Rail in support of their efforts to spur economic growth through strategic investments in high capacity networks. Together we will connect community anchor institutions, such as community colleges, universities, hospitals, libraries, K-12 schools, and public safety entities. We will bring to our community anchor institutions advanced broadband connectivity and interactive content from some of the nations' premiere research networks. Through Metro-INET/AFS' CBN, we will connect to 15 additional MN municipal governments including over a hundred anchors including public safety, municipal, libraries, K-12 schools, HealthCare, State, Data Centers, and Community Colleges.

RBC members will manage the network through a Joint Powers Agreement that will ensure all members have sufficient and affordable bandwidth capacity, resilient access to each other and the Internet, Internet2, and National Lambda Rail.

The proposed network connects each of the community anchor institutions back to two redundant Terabit IP/MPLS core routers. The 201 anchor institutions are provided with two path diverse 1GigE links back to the core routers. The11 key ("hub") sites are provided with two path diverse 10GigE links back to the core routers. And 46 lower bandwidth locations such as water towers are provided with GPON ONT with 1GigE.

The 10gig Core backbone sites consist of City Hall County Courthouse, City Hall Annex, Fire Complex Admin, FD-PD Training, Central (main) Library, James S. Griffin Bldg (PD Headquarters), Traffic Operations, Municipal Equipment, DSI offices, Water Utility Campus – office, Parks Hamline Shop/Central Services Facility, Public Works/Sheriff/ Soil and Water. These locations will be provided with IP/MPLS routers

capable of supporting 10GigE links. All these sites will be connected using redundant fiber (east & west) to form a 10Gig Ring.

The rest of the 201 anchor institutions are connected back to the core routers using redundant fiber (east and west) and IP/MPLS routers to form 1Gig rings. These redundant path diverse fiber routes ensure high availability to all these locations.

In order to serve the largest number of community members with the highest possible bandwidth and the most cost effective technology, GPON nodes will be strategically placed in core locations to provide 46 GigE connections. GPON nodes will be connected back to the redundant core routers.

The Middle Mile network will create a critical tool for increased economic development at the same time that it helps public safety agencies and all branches of government and institutions to improve their service delivery. In a business model where dark fiber services to other providers are the central business sometimes accurate subscriber numbers are difficult to derive. According to our research the dark fiber network will pass within one mile of over 11,000 businesses in the PFSA. Some larger customers will purchase their own dark fiber and light their own services but most will be provided by third-party providers. According to our calculations third-party providers will serve approximately 784 businesses at the end of year five, we believe this estimate to be conservative.

Ramsey County and its communities face a number of barriers to providing the type of technologically advanced infrastructure needed for today's economic growth and to creating fast and responsive governments. To solve both the needs of the government agencies to conduct business and to enhance the economic development environment of Ramsey County, we need to implement a cost effective, stable, expandable fiber optic infrastructure, that not only meets our bandwidth needs today, but well into the future. The RBC CFN will have an immediate impact on accelerating collaborations to reduce costs, improve efficiencies and develop innovative, secure eGovernment, Telehealth, and distance educations applications and services for constituents.